

**Windshield Tour Script – Industry Week**

May 5, 2010

**(Opening preamble before you leave 2714)**

The Procurement Integrity Act requires that we read this script exactly as written, and that we not answer any questions, in order to preserve the purity of this procurement. Any questions you have at the end of the tour may be submitted on the website (ETTPSEB@oro.doe.gov). You may take notes, but you may not take photographs, video, or any other electronic recordings during the windshield tour. Cell phones, PDAs, two way radios must be turned off or left in your private vehicles. Does anyone have an electronic recording or communications device? If so, please take it to your car for safe-keeping.

**Introduction** (Read on the drive from 2714 to Y-12)

Welcome to Oak Ridge! Thank you for participating in this site tour. We have a lot to cover today, and there will be a lot of information provided as we proceed along the tour route. We will tour the Y-12 National Security Complex and Oak Ridge National Laboratory sites this morning, then break for lunch. There are a lot of restaurants in Oak Ridge for you to enjoy. After lunch we'll tour the East Tennessee Technology Park sites. We should be finished by about 5 PM.

The Oak Ridge Reservation encompasses 35,000 acres and three major facilities: the Y-12 National Security Complex (Y-12 NSC), the Oak Ridge National Laboratory (ORNL), and the East Tennessee Technology Park (ETTP).

ETTP is owned by Environmental Management (EM), but a few buildings are leased or transferred to commercial interests. Y-12 and ORNL have a mix of DOE ownership, including EM, Science, Nuclear Energy, and the National Nuclear Security Administration. During this tour, we will identify the buildings, structures, and areas of each facility that are part of the EM work scope.

The first government facilities in Oak Ridge were built during World War II as part of the Manhattan Project. The Oak Ridge facilities continued to grow in importance in their Cold War roles of weapons manufacturing, basic research, and nuclear fuel enrichment through the 1970s. The nation's reduced reliance on nuclear energy during the late 1970s and the early 1980s reduced the need for fuel enrichment, and as a result, the K-25 Plant was shut down in 1987. Both ORNL and Y-12 have continued to play major roles in our nation's science and weapons maintenance programs. Y-12 and ORNL are currently being revitalized and reindustrialized to meet the future needs of the nation.

The Oak Ridge plants today employ approximately 13,000 people (not counting subcontractors), constituting the largest single employment base in Tennessee. The Oak Ridge Operations workforce has a monthly payroll of over \$80 million. Oak Ridge itself has a population of approximately 28,000, many of whom gain their livelihood from these plants. Many other employees live in Knoxville and Knox County, but employees live in all surrounding counties and even as far away as Chattanooga. The Oak Ridge plants contribute over \$75 million in state taxes annually. You can see that the DOE operations have an enormous economic and social impact on the region.

We're going to start our tour at the Y-12 facility.

## **Y-12 National Security Complex**

**Enter at Y-12 Main Portal on Bear Creek Road.**

We begin today's tour at the Y-12 National Security Complex, the nation's premier manufacturing facility dedicated to making our nation and the world a safer place. The Y-12 mission began on a cold February morning more than 60 years ago (February 18, 1943), when ground was broken in rural East Tennessee for the first production building at the Y-12 Electromagnetic Separation Plant. The plant's job was to make enough enriched uranium for a new kind of bomb, an atomic bomb. At the end of the war, the mission of Y-12 changed. The United States was pursuing the development of a new, even more powerful weapon, and Y-12 would play key part in the production of thermonuclear weapons. The mission has continually evolved and today Y-12 is a unique national asset in the manufacture, processing and storage of special materials vital to our national security and to the prevention of the spread of weapons of mass destruction.

**Follow Bear Creek Road to left on Old Bear Creek Road and pass through Portal 17. After badge check, turn right onto the South Patrol Road and proceed past Landfill IV.**

Located along Chestnut Ridge are the ORR Landfills, which receive classified, sanitary, industrial, construction/demolition, and earthen materials from across the reservation. As we approach the turnaround, on your right is **Landfill IV** a 4.2-acre Class II landfill which was initially constructed in 1989 and receives only classified non-hazardous sanitary and industrial solid waste. The eastern side of the landfill was opened prior to implementation of the current Class II landfill regulations; therefore the eastern 1 acre of the landfill does not have a leachate collection system or a gas monitoring system. The landfill has a groundwater detection monitoring system in place. The scope of work includes operation and maintenance in accordance with permits, regulations, and orders; accepting and placement of approved wastes that meet the WAC from all three sites; and conducting waste operations to maximize the use of the landfills over other disposal sites.

**Continue on the South Patrol Road to the South Ridge Overlook**

As you view the Y-12 industrial area it is essential to note the evolving and fluid nature of the plant's physical structure. Funding from the American Recovery and Reinvestment Act has allowed environmental cleanup activities such as the removal of excess equipment and scrap materials from the Manhattan Era buildings to move forward on an aggressive schedule. Some of the structures are being demolished as part of Y-12's ongoing effort to significantly reduce its footprint. The most notable of these ARRA-funded D&D efforts is the Biology Complex.

Looking directly below us, you will see **Alpha 4 and the Beta 3 Complexes**. Y-12 had two stages of calutrons—the Alpha and Beta stages. Alpha calutrons enriched material to about 15 percent enrichment, which was then fed into the Beta stage, which increased the enrichment to weapons-grade material. Y-12's Beta 3 and Alpha 4 facilities date back to the 1940s and are currently storing years of legacy material from past plant operations. The buildings were built in 1945 and are located within the high security area of Y-12. Beta 3 continually played a central role in nuclear component production through the Cold War. The Alpha 4 Facility is the second largest Y-12 facility at over 510,000 square feet. These buildings will require surveillance and maintenance until they undergo D & D.

**Return west along the South Patrol Road to Portal 17, then on Old Bear Creek Road to Bear Creek Road.**

Return to Bear Creek Road, turn left and pass through the Bear Creek West Portal, then right into the Environmental Management Waste Management Facility.

### **EMWMF Management and Operations**

To help orient you with our location, we are in the East Bear Creek Valley west of the Y-12 National Security Complex. On your left on the southern slope of Pine Ridge is the **Environmental Management Waste Management Facility (EMWMF)**, an engineered disposal facility constructed to receive CERCLA waste generated during environmental restoration of the ORR and associated areas within the state of Tennessee. The EMWMF was approved for construction in 1999 and began operations in 2002 as the keystone to the CERCLA remediation of the ORR. Trucks containing waste from a specific waste lot arrive at the disposal cell and are directed to the location where the waste will be placed in the facility for disposal. The EMWMF was designed to expand in response to the waste volumes generated by DOE cleanup projects in East Tennessee. Two cells with a combined capacity of 400,000 yd<sup>3</sup> were initially constructed. The second phase of construction was completed in 2005 increasing the EMWMF capacity to 1.2 million yd<sup>3</sup>. The most recent expansion approved for the EMWMF brings the waste capacity to approximately 1.7M yd<sup>3</sup>. The final EMWMF expansion will bring the total waste volume capacity to 2.2M yd<sup>3</sup>.

The scope of work will include operation and maintenance of the facility, placement of received waste materials, and closure of existing cells in compliance with all applicable environmental regulations, approved operating requirements and the Record of Decision.

Return on Bear Creek Road to Scarborough Road, then right on Bethel Valley Road, then right on Clear Spring Road to the Chestnut Ridge waste management areas.

On your left is Industrial Landfill V and on your right is the construction/demolition Landfill VII. **Landfill V** was constructed in 1994 as a 15-acre Class II landfill. This landfill receives non-hazardous sanitary, industrial, construction and demolition wastes. The landfill is being expanded under ARRA by constructing Area 4 with a planned capacity of 385,000 cubic yards. Special waste is also allowed to be disposed of at the landfill with approval from TDEC. The landfill has a groundwater detection monitoring system in place.

**Landfill VII** and was constructed in 1994 as a 20-acre Class IV landfill and receives construction and demolition wastes and other wastes approved by TDEC that have similar characteristics.

The **Chestnut Ridge Landfill** received coal ash from the Y-12 power plant that was pumped over the top of Chestnut Ridge in a slurry. The ash partially settled in the landfill, and the overflow from the landfill flowed south down McCoy Branch to Rogers Quarry, where the residual ash particulate in the water settled further. The area below the earthen dam at the Chestnut Ridge Landfill is a wetland area designed to filter out dissolved metals from the coal ash.

Return to Bethel Valley Road, turn right (west) and pass through guarded portal to ORNL.

## Oak Ridge National Laboratory Sites

The second site on this tour is the sister facility to Y-12, the Oak Ridge National Laboratory. ORNL, code-named X-10, was also established in February 1943 one ridge to the south from Y-12 in the Melton and Bethel Valleys. While Y-12 was working on the full-scale production of enriched uranium, X-10 was selected as the site that would use a Graphite Reactor to pioneer a method for producing and separating plutonium from uranium by nuclear bombardment. During the 1950s and 1960s, ORNL became an international center for the study of nuclear energy and related research in the physical and life sciences. With the creation of DOE in the 1970s, ORNL's mission broadened to include a variety of energy technologies and strategies. Today the laboratory's role as America's largest facility for science and energy research supports the nation with a peacetime science and technology mission that is just as important as, but very different from, its role during the Manhattan Project.

### Passing New Bethel Valley Church

As we proceed through the rotary on your left is the Visitor's Center and the National Institute for Computational Sciences which provides the most powerful computing resources in the world for open scientific research.

### Proceed west through round-about, then left onto Fifth St., then right on Central Avenue

As we turn right onto Central Avenue the facilities to your right are a group of buildings known as the Isotope Circle Facilities. Many of these facilities were radioisotope production laboratories that are no longer operational, others are support facilities. Fifteen facilities and structures, with a total of 26,113 ft<sup>2</sup> under roof, in this group have undergone deactivation activities and are currently under the Oak Ridge Operations Environmental Management (EM) surveillance and maintenance (S&M) program pending deactivation and demolition (D&D) activities. **Building 3038** on the right was constructed to house all the radioisotopes shipping activities for ORNL. The building has been in operation since 1949 and consists of 5 hot cells shielded by water-filled steel tanks. Facility contaminants include radiological contaminants, asbestos, lead and polychlorinated biphenyls (PCBs).

**Liquid and Gaseous Waste Operations** (LGWO) is the organization responsible for operations and maintenance of the Low Level Liquid Waste system, Process Waste Treatment Complex (PWTC, wastewater), and Gaseous Waste System. The ORNL Liquid Gaseous Waste Operations consists of operations for the process wastewater, Liquid Low-Level Waste (LLLW), and gaseous waste treatment systems. There are approximately 68 facilities and structures, LLLW collection tanks and piping, and process waste manholes and piping operated within this system. The facilities and structures are scattered throughout the ORNL campus, the largest concentration being in the central campus area. However facilities are also located within Melton Valley and near HRE, NHF and the High Flux Isotope reactor.

The Gaseous Waste system collects, treats, and discharges ventilation air and hot off-gasses from a large number of ORNL facilities. The combined gasses are discharged at the **3039 Stack**, Central Radioactive Gas Disposal Facility, seen on the right. The fans and scrubber system that service the facilities are located near the 3039 Stack. Most of the filtration systems are located at the generator facilities. The average discharge flow from the 3039 Stack is 160,000 cubic feet per minute. Typical generating facilities include hot cells, glove boxes, laboratories, storage tank vaults, and other radiological areas. Operation of the GW system includes collection and treatment, sampling, monitoring, repairs, filter replacements, S&M and documentation.

Also to the right is the main control room and office area housed at **Building 3130** (up the hill to the right), the Waste Operations Control Center. Operations are conducted 24/7 for all three systems. Operation includes facility management, LLLW collection and transfers, monitoring, pre-treatment, storage, repairs, surveillance and maintenance (S&M), and documentation.

#### At corner of Third and Central

To the right is the North Tank Farm, currently undergoing remedial actions with ARRA funding.

#### Turn left on Third Street

To the right you'll see **Building 2531**. It is part of the Low-Level Liquid Waste system which collects low-volume, high-activity liquid waste from all Bethel Valley and Melton Valley generators. Some of the LLLW is transferred to Building 2531 by pipeline and some by tanker truck. Liquid wastes are concentrated by evaporation at **Building 2531** to a smaller volume for storage in underground storage tanks located in **Building 2537**, also on your right, and Melton Valley (Building 7856 CIP tanks). The low-level waste evaporator in Building 2531 treated approximately 131,000 gallons of low-level liquid waste in 2009. Evaporator concentrate is transferred by double-contained underground pipeline to Melton Valley.

To the left is **Building 3517**, the Fission Product Development Laboratory (FPDL) This facility no longer has a programmatic mission and is slated for decontamination and decommissioning (D&D). The facility is partially deactivated and is undergoing transitional surveillance and maintenance (S&M) and limited deactivation activities pending the final decommissioning of the facility. The facility was constructed in the mid-1950s and became operational in 1958. Building 3517 is a two story building containing approximately 17,028 ft<sup>2</sup> of floor space. Although all process-related activities have been discontinued in Building 3517, the facility still contains radioactive and hazardous materials.

#### Turn right on White Oak Avenue

Farther down White Oak Avenue are the principal burial grounds in Bethel Valley, SWSA 3 and the Contractor's Landfill. Between 1943 and 1951, solid low-level radioactive waste was routinely buried at shallow depths in the subsurface soil. Early burial procedures involved using unlined trenches covered by soil or a combination of concrete caps and soil.

#### Turn left at First Street, cross the 7500 Bridge and proceed onto Melton Valley Drive.

We are crossing White Oak Creek. To your left is a surface water sampling point and support building referred to as the 7500 weir used to support the Water Resources Restoration Program. The **Process Wastewater Treatment Complex**, consisting of Building 3544, the **Process Waste Treatment Plant** and **2600 Area Tanks**, parts of the LGWO can be glimpsed the trees on our left, as is **SWSA 1**. Unfortunately, cap construction at SWSA 1 prevents us from getting closer to these facilities.

The Process Wastewater Treatment Complex treated approximately 130 million gallons of radiological and non-radiological process wastewater and groundwater in 2009. Radioactive contaminants, heavy metals, and organic solvents are removed from the wastewater using processes such as precipitation, filtration, ion-exchange, air stripping, and activated carbon to meet the requirements of a National Pollutant Discharge Elimination System (NPDES) discharge permit.

SWSA 1 was the first area used for burial of low-level solid wastes. It is a relatively small, approximately 1-acre burial ground used from 1943 to 1944. Contaminated solid wastes were



buried in SWSA 1 in trenches using earthen cover, and additional cover is being placed using ARRA funding.

We are now entering the Melton Valley watershed. The Melton Valley watershed encompasses 1,062 acres. Historic waste management practices within the area have led to the presence of tens of acres of buried solid radioactive and hazardous mixed waste in shallow trenches and auger holes. The principal waste burial sites are SWSAs 4, 5, and 6. We are currently passing **SWSA 4** on your left and you'll notice the methane vents on the surface. SWSA 4 covers an area of 23 acres that includes trenches and auger holes used for disposal. This landfill was used for approximately 8.5 years and contains an estimated 2,000,000 ft<sup>3</sup> of waste.

#### Arrive at K-Pad

From this vantage point you can get a general sense of the size and structure of **SWSA 6**. SWSA 6 has been used for the disposal of LLW generated at ORNL since 1974. The cap requires inspections, maintenance, and mowing. The blue building is a maintenance facility. You can also see a large TVA power line. The concrete casks behind us contain No Path For Disposition wastes – generally mixed wastes that cannot be disposed in landfills or by means of treatment.

#### Turn around and return to Lagoon road, turn right on Burial Ground Access road.

In the early 1950's chemically treated low level liquid waste was disposed of in large **seepage pits and trenches (Pits 2, 3, and 4)** in the area to your right. The clay soil acted as a sorption agent for the radionuclides contained within the waste. Seven seepage pits and trenches were used from 1951 to 1966. **Trench 5** on your left was constructed in 1960 and used until 1966. It was paved with an asphalt cover in 1970, and later capped as part of the Melton Valley Hydrologic Isolation project. These areas require inspections, maintenance, and mowing.

#### Turn left on Melton Valley Hydraulic Isolation Haul Road

Though the trees on the left you can see the **Trench 7** area. Trench 7 consists of 2 segments that are each 100 ft long by approximately 10.5 ft wide and 16 ft deep. Trench 7 was built in 1962 and was used until 1966; it was paved with asphalt in 1970. On the right side of the road is White Oak Creek.

#### Cross over White Oak Creek Weir monitoring station.

We are crossing White Oak Creek to your right is a surface water sampling point and a support building referred to as the White Oak weir, another measuring point used in the Water Resources Restoration Program.

#### Cross Melton Branch. The TRU area is ahead of the bus. **Only one bus at a time can enter the TRU area because there is not enough room for two.**

To the front of the bus you can see the **TRU Waste Retrieval and Transfer Operations** facilities. TRU waste sludges are those that precipitate, separate, and settle in the LLLW storage tanks in Melton and Bethel Valleys. Most of the TRU sludge now resides in the Melton Valley Storage Tanks at Building 7831 that is now under the control of the TRU Waste Processing Center (operated by EnergX). The Melton Valley Storage Tanks consist of eight 50,000 gal stainless steel tanks within a containment vault. Some TRU sludge remains in the Bethel Valley Evaporator Service Tanks located at Building 2537. The sludge in the Bethel Valley Evaporator Service Tanks will eventually be transferred to the Melton Valley Storage Tanks using the old AEA Pulse Jet system. The Pulse Jet system and Moyno progressive cavity

pumps were last used in the late 1990s and will require maintenance and upgrades to accomplish the transfers.

At the front of the bus are also the 7856 CIP tanks (6) are 100,000 gal horizontal stainless steel tanks installed within a large concrete vault.

At the end of 2009, the total amount of mixed low-level waste stored at DOE ORO was 4,808,360 kilograms (10,600,607 pounds). Mixed TRU waste comprises approximately 87% of the total, and all mixed TRU waste is stored at ORNL. Remote-handled mixed low-level aqueous waste makes up 11 % of the total and is stored in tanks at ORNL. The remaining 2% is contact-handled mixed waste. Mixed TRU wastes are divided into two primary waste streams: remote-handled sludges and contact-handled and remote handled solids and debris. The *Site Treatment Plan for Mixed Wastes* (Rev 14, DOE, October 2009) describes how the mixed wastes will be handled and provides milestones through 2018 for processing these wastes.

Turn left on Melton Branch Road, then left on HFIR EVAC Route, then left on SWSA 5 Cutoff Road

We are crossing part of **SWSA 5**. SWSA 5 is one of the major burial grounds used for disposal of low-level radioactive solid waste at ORNL. SWSA 5 is an area of about 80 acres. Disposal operation began in 1959 and was consistent with standard practices of the time, which entailed shallow land burial in excavated trenches and drilled auger holes. When the TRU storage facilities were opened in 1970, the SWSA 5 trench and auger hole disposal areas became known as SWSA 5 South and the TRU storage area became SWSA 5 North. Like the other capped areas in Melton Valley, SWSA 5 requires inspections, maintenance, and mowing.

Turn left on SWSA 5 Access Road and pass through SWSA 5 North.

Trench 13 is on the left. The buildings are support facilities for remediation and S&M operations in Melton Valley

Pass through superfluous gate and turn right on Melton Valley Access Road.

On the right are the buildings associated with the **Homogeneous Reactor Experiment**. Building 7500 contained the Homogeneous Reactor Test (HRT) which included a fluid-fuel reactor, chemical processing equipment, and related reactor components. The facility was originally constructed to house HRE-I, the first of two experimental aqueous homogenous reactors to be developed for nuclear power application analysis. In 1953, HRE-2 replaced HRE-I and the second reactor was constructed during 1953-1956. The reactor was shut down in 1961.

Continue proceeding east on Melton Valley Access Road

On the right are the buildings associated with the **Molten Salt Reactor Experiment**. MSRE was a single-region, unclad-graphite-moderated, homogeneous-fueled reactor built to investigate the practicality of the molten salt reactor concept for central power station applications. The MSRE operated from 1965-1969.

Continue proceeding east on Melton Valley Access Road, pull off at Building 7574

Note Building 7574, which is part of Liquid and Gaseous Waste Operations. Building 7574 is used to store and mix chemicals used in wastewater treatment.

Turn left on MV Access Rd back to Bethel Valley Road, then right (east) to Scarborough Rd and return to 2714 Complex, where we'll break for lunch. Please return here in 1 hour (set the return time).

## **East Tennessee Technology Park**

### **(Opening preamble before you leave 2714)**

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Turn right on Laboratory Road from the 2714 parking lot, proceed two traffic signals to Lafayette and turn right. Get in the left lane and turn left onto Oak Ridge Turnpike. Follow Oak Ridge Turnpike west for about 11 miles, then turn right onto Boulevard Road at the Heritage Center sign. Enter the Centrifuge Area of ETTP.

### **Introduction (read on the drive to ETTP)**

We will wrap up our tour today by visiting the former K-25 site, now known as the East Tennessee Technology Park. The code name "K-25" was a combination of the "K" from the Kellogg Corporation, the initial contractors of the plant, and a World War II-era code designation for uranium-235. Construction of the K-25 Site started in 1943 with the K-25 Building, the world's first diffusion facility for large-scale separation of uranium-235. The K-25 Building was fully operable by August 1945. Additional buildings involved in the enrichment process were operable by 1956. In the post-war years, additional uranium enrichment facilities were built adjacent to K-25 forming a complex officially known as the Oak Ridge Gaseous Diffusion Plant. DOE permanently shut down the plant in 1987 and K-25 site was declared a DOE Environmental Management (EM) site. In 1997, the site was renamed the East Tennessee Technology Park (ETTP), after a project of environmental restoration, decontamination and decommissioning, and reindustrialization was initiated the year before. The ETTP site covers about 5,000 acres.

The DOE's Environmental Cleanup Program calls for the demolition of most ETTP facilities, excluding those designated for reuse. About 800 acres, within a security fence, contain 14.4 million square feet of buildings. Among them are the shut down gaseous diffusion production facilities and gas centrifuge enrichment and ancillary buildings. Most of the buildings are 30 or more years old. Approximately 500 above-ground facilities are being demolished by groupings. To date, approximately 350 of these facilities have been completed. These facilities include buildings, tanks, sheds, and other structures. Some structure including the west wing of K-25, the former administration building, cafeteria, and medical facility, tanks, sheds, and other structures have already been demolished. The facilities currently shut down at ETTP contain large quantities of asbestos; oils; and equipment containing polychlorinated biphenyls (PCBs), coolants, lubricating oils, and radioactive materials. In many of the facilities, contamination has become fixed on equipment and structures, and these must be handled as hazardous or low-level radioactive waste. The facilities also hold special nuclear material, residual radionuclides (mainly uranium), and classified hardware and materials. Most of these facilities have actual or potential elevated concentrations of radiological and/or other hazardous substances. Demolition will include characterization, decontamination (if required), and segregation of demolition waste streams and disposal in appropriate Oak Ridge Reservation or other disposal facilities, as required.



Other facilities include, but are not limited to, vehicle maintenance, storage facilities, power operations and other support facilities, electric switch yard facilities, valve houses, office and storage trailers, Rubb structures, and other support facilities. These facilities will be demolished to their slab or basement. Also included is the removal of overhead pipes and racks providing site utilities. The EM scope includes surveillance and maintenance of buildings prior to D & D, as well as implementation of a site-wide surface water and groundwater quality monitoring program. Remedial actions will be required in many areas after building D & D is complete. ETTP remediation areas includes Zone 1, Zone 2, and Balance of Facilities.

Point out parking area (on left) for Building Tours on Thursday and Friday.

We are now entering the **Centrifuge Facilities Area**. This area is composed of laboratories and equipment testing facilities that supported the development and pilot testing of the gas centrifuge process for enriching uranium. Currently there are 16 facilities associated with the D&D scope. Some of the 16 buildings have had equipment removed from the structures. Approximately half of the centrifuge machines from the development facility have been disposed while the remainder has been processed for burial. The remaining facilities encompass outbuildings and trailers as well as structures used for a variety of processes including electrical supply, water cooling towers, small water pre-treatment systems, and office space.

(Stop and pick up Oglesby at Portal 3)

We are proceeding past building K-1220

On the right is the **K-1220 Centrifuge Plant Demonstration Facility**, which was used from 1981 to 1985 primarily to test production centrifuges to be used in the Gas Centrifuge Enrichment Plant and includes high, intermediate and low bay areas. The facility is a steel frame structure on a concrete slab with insulated metal siding enclosing approximately 86,000 ft<sup>2</sup> of floor space.

Behind K-1220 is **K-1210-A, Advanced Equipment Test Facility**. This facility was used from 1978 to 1985 to test the reliability of production centrifuges and includes high, intermediate and low bay areas. The facility is a steel frame structure on a concrete slab with insulated metal siding enclosing approximately 24,000 ft<sup>2</sup> of floor space.

Turn left on Fifth St. East

As we continue, the structure to your right is the **K-1004-J Special Development Lab**. This one-and-a-half-story concrete masonry facility was constructed in the late 1940s and has approximately 7,000 ft.<sup>2</sup> of floor space. Below grade storage vaults were originally located just outside the center double doors on the east side of the lab but were covered with a 4- to 6-inch concrete slab when the building mission changed in 1962. No inventory of the contents of the vaults was discovered, and it is not known whether the materials stored in the vaults were removed. Waste solutions from the research at the lab were transferred to the process drains or the vaults. Two underground storage tanks (USTs) were installed at the facility and used from the late 1940s to the 1960s. A 5,500-gal. UST was installed below grade outside the southwest corner of the building and was closed by filling with sand and capping the flanges.

Within this area is the **K-1004-Q Centrifuge Laboratory**, which was a high-bay addition to the Equipment Test Facility (ETF) complex that operated from 1971 to 1985. The 1,800 ft<sup>2</sup> building is a concrete block and steel frame structure with a pre-stressed concrete roof with a central pit measuring 25 ft by 25 ft by 14 ft deep with an additional 12 ft pit under one third of the central pit. The high bay includes a 1.5-ton overhead crane and a portable 5-ton gantry crane.

Turn right onto Avenue "D"

To the right is **K-1005** . This facility was used for lab and office space.

**Continue north along Ave. D**

Off to the left you can see the East Wing of the K-25 Building. On the hill to the right is the K-1070-C/D Burial Ground.

**Cross the railroad tracks at 14<sup>th</sup> St., then turn right on 15<sup>th</sup> St.**

To the left is the **Central Neutralization Facility (CNF)**. This facility was constructed in 1985 and served as the main wastewater treatment plant at ETTP. It treated all waste water, including radioactively contaminated water, for pH, heavy metals, and suspended solids to meet NPDES discharge limits. Wastes received at the facility were neutralized by adding sulfuric acid, sodium hydroxide, or hydrated lime, before being released into the environment. The major process facilities are the Neutralization Pit, the Neutralization Facility; and the Settling Basin. There are several containment and storage tank facilities that extend approximately 17 ft below grade. There are 49 structures in this scope. Note: Prior to D&D of CNF, alternate means for treating contaminated ground water containing hexavalent chromium, will need to be established and implemented.

**Continue on 15<sup>th</sup> Street to pass K-1037**

On the right is the **K-1037 Industrial Research Facility**. K-1037 is 820-ft long, 400-ft wide and approximately 30-ft high, and is composed of a series of additions and extensions that are now under one roof. The building is a two levels steel frame structure with reinforced concrete floors and a basement. Transite siding covers the three exterior walls and some interior walls of the building, and metal siding covers the three exterior walls on the western half of the building. The roof consists of metal deck built up asphalt and insulation board. K-1037 was most recently used for office space and document storage it is approximately 2,400 ft<sup>2</sup>. The facility has a large amount of legacy materials, asbestos, and process equipment to be disposed.

**The tour proceeds along 15<sup>th</sup> St.**

To the right is the **DOE Toxic Substances Control Act (TSCA) Incinerator**. The TSCA Incinerator was constructed in 1989. The TSCA Incinerator has treated solid and liquid wastes, primarily contaminated with polychlorinated biphenyls (PCBs), since 1991, and was the only facility in the U.S. permitted to burn radioactive and hazardous wastes. It ceased operations in December 2009, and is currently undergoing RCRA closure. The incinerator was a rotary kiln thermal treatment facility with a secondary combustion chamber and a wet off-gas cleaning system.

**From here, we'll exit to Blair Road and turn left (west), then we'll cross Poplar Creek and turn left onto Perimeter Road.**

Off to your left is the K-25 building, which occupies about 40 acres in the center of ETTP.

**We continue along Perimeter Road**

On your right are the **K-1065 RCRA waste storage buildings** which provide indoor storage for mixed waste. The 5 buildings are part of the surveillance and maintenance program.

On your left is the **K-33 Building** which will be demolished by an IDIQ contractor.

On your left is the **K-31 Building** which was placed in operation in 1951, occupies approximately 20 acres, and was used for the isotopic enrichment of uranium by the gaseous diffusion process. The building was placed on standby in 1985. The K-31 building is 1,200 ft long and 622 ft wide. K-31 is constructed of steel with concrete encased steel columns on the

operations floor with corrugated transite siding. The roof consists of built up asphalt and insulation board that is in reasonably good condition. Process tie lines that connect the K-31 Building to the K-33 and K-631 buildings have been air gapped. No stored material or process equipment remains in the facility. Utilities necessary to provide limited entry remain in service.

**Cross Poplar Creek and pull to the right side of the road.**

We have just crossed over Poplar Creek, a tributary of the Clinch River.

**Proceed along the West Perimeter Road.**

On your left are numerous small facilities and buildings that are referred to as the **Poplar Creek Facilities**. They are hard to see from here, but you'll get a closer look during the walking tour through the area later this week.

The Poplar Creek facilities are located north and west of K-27 and were constructed to support operations at K-27 and K-29 (removed; only the slab is visible). These facilities consist of outbuildings and trailers as well as structures used for a variety of processes including sandblasting and painting, oil storage, water pump houses, small water pre-treatment systems, and concrete rubble storage. Also included are the UF6 and utility tie lines in the Poplar Creek area and between K-25/K-31/K-33 and from K-27 to K-631. There are 53 facilities, support trailers and other structures associated with this scope including, but not limited to the following:

To your left is the **K-27 Gaseous Diffusion Building**. K-27 was a sister facility to the original K-25 gaseous diffusion plant to the north. It is a rectangular building that occupies 374,000 ft<sup>2</sup>. K-27 was built in 1945, and is a four-level, concrete steel frame structure with corrugated transite siding. More information will be provided on this facility during the building tour. Process tie lines connect the K-27 Building to the K-25, K-633, K-131 and K-1131 buildings. The lines are still in place but have been air-gapped, vented and purged. There is known radiological contamination in equipment, piping, and building structure.

**Proceed along the South Perimeter Road. Stop at the north end of the Portal 4 parking lot for a view of the East Wing of K-25.**

To the left of the bus is the **K-25 Gaseous Diffusion Building**. Constructed in 1944, the K-25 facility was used to enrich uranium. At the time of its construction the U-shaped building, which contained 1.64 million square feet of floor space, was the largest roofed building in the world. It was closed in 1964. The remaining D&D scope includes the east wing and the north tower - which forms the bottom of the "U". The building is a four-level concrete and steel frame structure with some remaining transite. The basement, or vault area, has reinforced concrete columns and floors. The roof consists of metal deck with built up asphalt and insulation board that is severely deteriorated and leaking. Currently, due to the deteriorated condition, there is very limited access to the operations floor.

**Exit ETPP for return to the 2714 Complex.**

**STOP AT THE WATERFALL AND LET OGLESBY OUT**

We hope this tour has been helpful in providing an overview of the Oak Ridge Reservation facilities, and in highlighting the major components of the initial project scopes. Please remember that the ETPP Building Tour starts tomorrow morning at 7 AM in K1580. You are responsible for getting to ETPP on time for the safety briefing.